

# ENGINEERS AUSTRALIA

## Western Australia Division

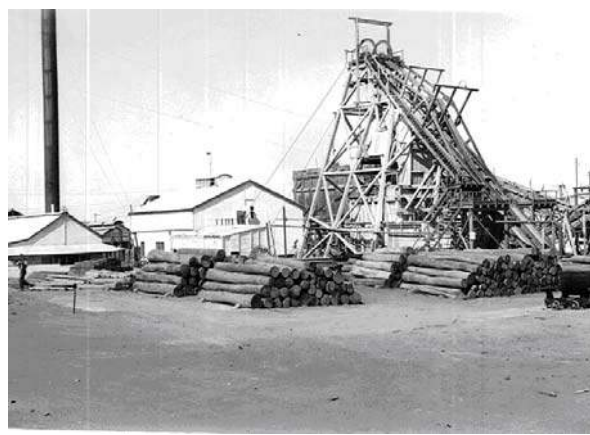


ENGINEERS  
AUSTRALIA  
Western Australia Division

### CEREMONY REPORT

#### SONS OF GWALIA HEADFRAME AND WINDER ENGINE

CEREMONY DATE 31 MAY 2015



# INDEX

1.	INTRODUCTION.....	3
2.	CEREMONY AND DISTINGUISHED GUESTS.....	4
3.	PROGRAM AND SPEECHES .....	4
4.	CEREMONY BROCHURE.....	4
5.	MEDIA COVERAGE .....	4
6.	COSTING.....	5
7.	INTERPRETATION PANEL AND MARKER DISC.....	5
8.	PHOTOGRAPHS.....	6
	APPENDIX 1 – LIST OF INVITEES .....	7
	APPENDIX 2 – INVITATION .....	12
	APPENDIX 3 – SPEECHES.....	14
	APPENDIX 4 – CEREMONY BROCHURE.....	19
	APPENDIX 5 – INTERPRETATION PANEL DESIGN .....	22
	APPENDIX 6 – DETAILS OF THE HEADFRAME AND WINDER ENGINE	24
	APPENDIX 7 – MEDIA COVERAGE .....	25

Cover photos:      Top right – Winder Engine  
                         Others – Headframe

## **1. INTRODUCTION**

Until the 1870s the economy of Western Australia was based on wheat, meat and wool. A major change in the state's fortunes occurred in the 1880s when gold was discovered and prospectors by the tens of thousands swarmed across the land in a desperate attempt to discover new goldfields.

The Sons of Gwalia was discovered in 1896. Production and settlement by Europeans immediately commenced and the twin towns of Leonora and Gwalia became established and were connected by railway to Kalgoorlie and Coolgardie, 250 km to the South.

Herbert Hoover was appointed Superintendent of the Sons of Gwalia and arrived on site in August 1897. He left Gwalia the next year. He became the president of the United States of America in 1929.

The Sons of Gwalia was in steady production from 1900 until 1910 yielding more than 55,000 ounces of gold each year.

By 1919 with its incline shaft just short of 1.2km in length, the Sons of Gwalia was the deepest mine in Western Australia, and yet probably the most economical in operation.

The underground mine remained in production continuously up to 1963 when it became uneconomic and was closed. In the 1980s the headframe and winder engine were relocated to Gwalia Museum, while the underground mine has transformed to an open cut operation.

The timber headframe and winder engine worked together to transport people, timber, horses and ore in and out of the mine workings below. The distinctive 45° incline aligned the mineshaft with the direction of the gold reef, significantly improving the efficiency of the workings.

The headframe was constructed using oregon timber imported from the USA. The headframe is the only large timber incline headframe surviving in Australia, and one of very few timber headframes of any size from the nineteenth century. There are only three surviving timber headframes in Western Australia. Sons of Gwalia headframe is the oldest.

The original 50 horsepower Risdon engine was replaced in 1913 by a two cylinder steam powered and capable of hauling 1500 feet per minute. The engine is the largest of its type in Australia and one of only three surviving. It is a fine example of technological achievement of the period, one hundred years ago.

An Engineering Heritage National Marker was awarded to Shire of Leonora on 31 May 2015.

## **2. CEREMONY AND DISTINGUISHED GUESTS**

The dedication ceremony was organised by the Shire of Leonora with assistance from Engineering Heritage WA (EHWA) and the Engineers Australia WA Division Office. The full list of invitees is included in Appendix 1. Acceptance and apologies are noted.

The Interpretation Panel and marker were located between the headframe and winder engine shed, which are only about 50 metres apart.

## **3. PROGRAM AND SPEECHES**

The ceremony commenced at 9.00am on a clear autumn day. About 40 invited guests and a number of members of the public attended.

The ceremony was one of a number of activities held in Leonora and Gwalia as part of the annual “Golden Gift” weekend.

The master of ceremonies was Ian Maitland, EHWA Chair. Speeches were given by Mr Kadu Muir, representing traditional owners, Mr Francis Norman, Engineers Australia Western Australian Division President, Ian Maitland and Wendy Duncan MLA, member for Kalgoorlie.

The speech notes are included in Appendix 3.

The Interpretation Panel was officially unveiled by Wendy Duncan MLA. Councillor Peter Craig, Shire President, Shire of Leonora formally accepted the award on behalf of the Shire of Leonora.

Following the conclusion of the ceremony, a tour was undertaken of the headframe and winder engine, followed by refreshments, courtesy the Shire of Leonora.

## **4. CEREMONY BROCHURE**

A ceremony brochure was produced by Engineers Australia, WA Division. See Appendix 4.

## **5. MEDIA COVERAGE**

The ceremony was reported by ABC Regional Radio, local newspaper The Tower Street Times, July 2015, Kalgoorlie Miner, 7 May 2015. In addition, media releases were issued by Shire of Leonora and Engineers Australia. See Appendix 7.

## 6. COSTING

Item	Cost (including GST)	Source of funding
Panel Design	\$0	EHA
Panel Manufacture	\$3,077	Shire of Leonora
Panel Delivery	\$400 approx	Shire of Leonora
Marker	\$200 approx	EHA

The cost of the installation of the interpretation panel and the dedication ceremony were funded by the Shire of Leonora.

## 7. INTERPRETATION PANEL AND MARKER DISC

The interpretation panel design is shown in Appendix 5. The panel is vitreous glass enamel, 1200 mm wide and 600 mm high. It is mounted on a stainless steel frame and has been positioned at a prominent location between the headframe and winder engine, on Tower Street, Gwalia. The marker is the standard 300 mm diameter vitreous enamel on steel marker used by EHA.

## 8. PHOTOGRAPHS



Figure 1. The Interpretation Panel in location between the headframe and winder engine shed. (Photo: Ian Maitland)



Figure 2. SONS OF GWALIA CEREMONY – 31 MAY 2015  
 Left to right:  
 Mr Ian Maitland, Chair of EHWA  
 Mrs Wendy Duncan, MLA Member for Kalgoorlie  
 Councillor Peter Craig, Shire President, Shire of Leonora  
 Mr Francis Norman, President Engineers Australia WA  
 (Photo: Shire of Leonora representative)

## **APPENDIX 1 – LIST OF INVITEES**



Name	Positions	Email	Yes	No	Guest
Wendy Duncan, MLA	MLA, Member for Kalgoorlie	<a href="mailto:wendy.duncan@nationalswa.com">wendy.duncan@nationalswa.com</a>	✓		2
Jim Epis	CEO Shire of Leonora	<a href="mailto:ceo@leonora.wa.gov.au">ceo@leonora.wa.gov.au</a>	✓		1
Cr Peter Craig	Shire of Leonora President	<a href="mailto:peter.craig@bagden.com.au">peter.craig@bagden.com.au</a>	✓		1
Mr Francis Norman AFIE Aust CEngA and Mrs Rebecca Norman	WA Division President, Engineers Australia	<a href="mailto:francis.norman@mac.com">francis.norman@mac.com</a>	✓		2
Mr Ian Maitland FIE Aust CPEng and Mrs Ursula Maitland	Chair of Engineering Heritage Western Australia	<a href="mailto:ianmcse@iinet.net.au">ianmcse@iinet.net.au</a>	✓		2
Paul Webb	CEO Shire of Coolgardie	<a href="mailto:ceo@coolgardie.wa.gov.au">ceo@coolgardie.wa.gov.au</a>	✓		2
Bill & Joan Johnson	Long time Gwalia/Leonora Residence. Bill Worked on SOG Mine		✓		2
Terry Demasson	Long time Gwalia/Leonora Residence. Terry Worked on SOG Mine		✓		
Cr Matt Taylor	Shire of Leonora Councillor	<a href="mailto:matt@pmcc.com.au">matt@pmcc.com.au</a>			1
Cr Ross Norrie	Shire of Leonora Deputy President	<a href="mailto:rosscpa@bigpond.net.au">rosscpa@bigpond.net.au</a>			1
Denise & Michael Lorentz	Gwalia Leonora Reference Group	<a href="mailto:phoenixrun@nomadnet.com.au">phoenixrun@nomadnet.com.au</a>	✓		2
Tralee Cable	Gwalia Leonora Reference Group	<a href="mailto:tralee@pmcc.com.au">tralee@pmcc.com.au</a>			1
Gemma Smith	Hocking Heritage Studio	<a href="mailto:gemma@hockingheritagestudio.com.au">gemma@hockingheritagestudio.com.au</a>	✓		1
Elaine Labuschagne	Manager Economics & Heritage Service, Shire of Leonora	<a href="mailto:mehs@leonora.wa.gov.au">mehs@leonora.wa.gov.au</a>	✓		2
Kado & Deeva Muir	Walkatjurra	<a href="mailto:kadomuir@gmail.com">kadomuir@gmail.com</a>	✓		3
Stephen & Pat Peacock	Leonora Residence		✓		2
Anne Skinner & Partner	Anne Skinner Media	<a href="mailto:anneskinnermedia@gmail.com">anneskinnermedia@gmail.com</a>	✓		2



Kate Ferguson	Kate Ferguson Media	<a href="mailto:katefergusonmedia@gmail.com">katefergusonmedia@gmail.com</a>	✓		1
		-	<input type="checkbox"/>		28
Mr Keith Baker FIE Aust CPEng	Chair of Engineering Heritage Australia	<a href="mailto:kmjbaker@bigpond.com">kmjbaker@bigpond.com</a>	<input type="checkbox"/>	X	
Mr Owen Peake Hon FIE Aust CPEng	Chair of Engineering Heritage Recognition Program	<a href="mailto:owen.peake@bigpond.com">owen.peake@bigpond.com</a>		X	
Martin Silk MEng(Hons), MIEAUST	Intelara	<a href="mailto:Martin.Silk@intelara.com">Martin.Silk@intelara.com</a>		X	
Yen Nee Goh	Hocking Heritage Studio	<a href="mailto:yennee@hockingheritagestudio.com.au">yennee@hockingheritagestudio.com.au</a>		X	
Graeme Gammie	Executive Director , State Heritage Office	<a href="mailto:Graeme.gammie@stateheritage.wa.gov.au">Graeme.gammie@stateheritage.wa.gov.au</a>		X	
Callum Crofton	Manager Local Government Services, State Heritage Office	<a href="mailto:callum.crofton@stateheritage.wa.gov.au">callum.crofton@stateheritage.wa.gov.au</a>		X	
Alec Coles	CEO Western Australian Museum	<a href="mailto:alec.coles@museum.wa.gov.au">alec.coles@museum.wa.gov.au</a>		X	
Robert Mitchell	Executive Officer, Museums Australia WA Branch	<a href="mailto:robert.mitchell@museum.wa.gov.au">robert.mitchell@museum.wa.gov.au</a>		X	
Soula Veyradier	President, Museums Australia WA Branch	<a href="mailto:soula.veyradier@museum.wa.gov.au">soula.veyradier@museum.wa.gov.au</a>		X	
Jacquie Thomson	General Manager, Lotterywest	<a href="mailto:Jacquie.Thomson@lotterywest.wa.gov.au">Jacquie.Thomson@lotterywest.wa.gov.au</a>		X	
Jan Stewart	CEO, Lotterywest	<a href="mailto:Jan.Stewart@lotterywest.wa.gov.au">Jan.Stewart@lotterywest.wa.gov.au</a>		X	
Kate Grosso	Grants Officer, Lotterywest	<a href="mailto:Kate.Grosso@lotterywest.wa.gov.au">Kate.Grosso@lotterywest.wa.gov.au</a>		X	
Scott Hansen	BHP Billiton	<a href="mailto:Scott.Hansen@bhpbilliton.com">Scott.Hansen@bhpbilliton.com</a>		X	
Matthew Scott	CEO Shire of Esperance	<a href="mailto:ceo@esperance.wa.gov.au">ceo@esperance.wa.gov.au</a>		X	
James Rigg	Minara Resources	<a href="mailto:jrigg@minara.com.au">jrigg@minara.com.au</a>		X	
Tom Perrigo	National Trust WA	<a href="mailto:Tom.Perrigo@wa.wa.gov.au">Tom.Perrigo@wa.wa.gov.au</a>		X	
Mandi Warry	Manager Goldfields Tourism Network	<a href="mailto:info@goldfieldstourism.com.au">info@goldfieldstourism.com.au</a>		X	
Laurinda Hill	Coordinator Great Beyond	<a href="mailto:gbcoordinator@laverton.wa.gov.au">gbcoordinator@laverton.wa.gov.au</a>		X	
Kim Hewson	Economic Transitions	<a href="mailto:kim@economictransitions.com.au">kim@economictransitions.com.au</a>		X	

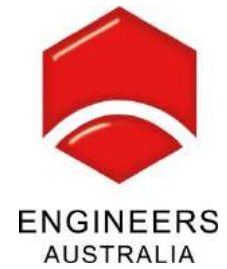
Pip McCahon	Senior Project Officer, Northern Goldfields	<a href="mailto:pip.mccahon@gedc.wa.gov.au">pip.mccahon@gedc.wa.gov.au;</a>		X	
Steven Deckert	CEO Shire of Laverton	<a href="mailto:ceo@laverton.wa.gov.au">ceo@laverton.wa.gov.au</a>		X	
Ian Masarei	Principal Leonora Disctrc High School	<a href="mailto:Ian.Masarei@education.wa.edu.au">Ian.Masarei@education.wa.edu.au</a>		X	
Dave Hadden	Principal EHO/Building Surveyor	<a href="mailto:healthbuilding@leonora.wa.gov.au">healthbuilding@leonora.wa.gov.au</a>		X	
Karen Oborn	Deputy CEO Menzies	<a href="mailto:dceo@menzies.wa.gov.au">dceo@menzies.wa.gov.au</a>		X	
Mandy Reidy	Electorate Officer, Office of Wendy Duncan MLA,	<a href="mailto:mandy.reidy@mp.wa.gov.au">mandy.reidy@mp.wa.gov.au</a>		X	
Deb Morton & Bruce Jansen	The Central Hotel	<a href="mailto:thecentralhotel@bigpond.com">thecentralhotel@bigpond.com</a>		X	
Don Burnett	CEO City of Kalgoorlie-Boulder	<a href="mailto:ceo@ckb.wa.gov.au">ceo@ckb.wa.gov.au</a>		X	
Cr Glenn Baker	Shire of Leonora Councillor	<a href="mailto:sixmile6@bigpond.com">sixmile6@bigpond.com</a>			
Cr Larnie Petersen	Shire of Leonora Councillor	<a href="mailto:Butsonsbs@westnet.com.au">Butsonsbs@westnet.com.au</a>			
Cr Alex Taylor	Shire of Leonora Councillor	<a href="mailto:Alex@northfields.com.au">Alex@northfields.com.au</a>			
Cr Richard Cotterill	Shire of Leonora Councillor	<a href="mailto:richardcotterill@live.com.au">richardcotterill@live.com.au</a>			
Gail & Gary Ross	Manager Gwalia Museum	<a href="mailto:museum@gwalia.org.au">museum@gwalia.org.au</a>			
Cheryl Cotterill	Gwalia Leonora Reference Group	<a href="mailto:Cheryl.Cotterill@health.wa.gov.au">Cheryl.Cotterill@health.wa.gov.au;</a>			
Boyd Sprig	Gwalia Leonora Reference Group	<a href="mailto:earthaustralia@bigpond.com">earthaustralia@bigpond.com</a>			
Debbie Hall	Gwalia Leonora Reference Group	<a href="mailto:debbie.hall@stbarbara.com.au">debbie.hall@stbarbara.com.au</a>			
David Nixon	President, Eastern Goldfields Historical Society	<a href="mailto:eghs@westnet.com.au">eghs@westnet.com.au</a>			
Connie Cocksey	Department of Mines and Petroleum, Regional Mining Registrar	<a href="mailto:Connie.COCKSEY@dmp.wa.gov.au">Connie.COCKSEY@dmp.wa.gov.au</a>			
Wayne & Jo Taylor	White House Hotel	<a href="mailto:whitehousehotel@bigpond.com.au">whitehousehotel@bigpond.com.au</a>			
John & Julie Coufos	Leonora Pharmacy	<a href="mailto:leonorapharmacy@iinet.net.au">leonorapharmacy@iinet.net.au</a>			
Larnie Petersen	Manager Outback Parks and Lodges - Leonora	<a href="mailto:leonoracp@outbackparksandlodges.com.au">leonoracp@outbackparksandlodges.com.au</a>			
Patrick Hill	Shire President Laverton	<a href="mailto:pt.hill@bigpond.com">pt.hill@bigpond.com</a>			
Mal Cullen	Shire President Coolgardie	<a href="mailto:shire.president@coolgardie.wa.gov.au">shire.president@coolgardie.wa.gov.au</a>			

Greg Dwyer	Shire President Menzies	riflepoint@bigpond.com			
Bernie Pozzi	CEO, MEEDAC, Goldfields	<a href="mailto:bernig@meedac.com">bernig@meedac.com</a>			
Raleigh Finlayson	Managing Director, Saracen Mineral Holdings Limited	<a href="mailto:info@saracen.com.au">info@saracen.com.au</a>			
Peter Crawford	CEO Menzies	<a href="mailto:ceo@menzies.wa.gov.au">ceo@menzies.wa.gov.au</a>			
Andrea Nunun	CEO Shire of Wiluna	<a href="mailto:ceo@wiluna.wa.gov.au">ceo@wiluna.wa.gov.au</a>			
Mia Dohnt	CEO Shire of Sandstone	<a href="mailto:ceo@sandstone.wa.gov.au">ceo@sandstone.wa.gov.au</a>			
Richard Brookes	CEO Shire of Dundas	<a href="mailto:ceo@dundas.wa.gov.au">ceo@dundas.wa.gov.au</a>			
Shorty	Leonora Motor Inn	<a href="mailto:leonoramotorinn@bigpond.com">leonoramotorinn@bigpond.com</a>			
Phillip Griffiths	Councillor, Heritage Council WA	<a href="mailto:info@heritagecouncil.com.au">info@heritagecouncil.com.au</a>			
John & Jill Heather	Long time Gwalia/Leonora Residence.				

## **APPENDIX 2 – INVITATION**



# INVITATION



**Engineers Australia**  
**WA Division**  
on behalf of the

Shire of Leonora

and

Engineering Heritage Australia

cordially invites

**(NAME)**

to the

Sons of Gwalia Headframe and Winder Engine

Engineering Heritage National Marker

Commemoration Ceremony

at Gwalia Museum, Tower Street, Gwalia

on

Sunday 31 May 2015, commencing at 9:00 am

Light Refreshments will be served

Please RSVP by 20 May 2015 to

Elaine Labuschagne email: [mehs@leonora.wa.gov.au](mailto:mehs@leonora.wa.gov.au) or phone 043 7132284

For name tags at the event, please advise preferred name

Please advise if you wish to join a tour of Gwalia ghost town & museum after  
the conclusion of the ceremony

## **APPENDIX 3 – SPEECHES**

### Mr Francis Norman, President WA Division, Engineers Australia

Distinguished guests, ladies and gentlemen

It is with great pleasure I accepted the invitation from Engineering Heritage WA to take part in this commemoration ceremony for the award of an Engineering Heritage National Marker to the Sons of Gwalia Headframe and Winder Engine.

This ceremony continues the long tradition of the Engineering Heritage Australia's Heritage Recognition Program. These ceremonies have occurred over a period of 30 years, commencing in 1984.

In excess of 180 sites and structures have been recognised to date, located in every State and Territory and cover virtually all aspects of our engineering heritage including:

- Bridges
- Dams
- Roadworks
- Pipelines and pumping stations
- Railways
- Ports
- Agricultural Machinery Innovations
- Military Engineering

When a site is approved for recognition an interpretation panel, giving details of the history of the site, is installed at a suitable location for visitors to read about the engineering heritage of the site.

Recent sites recognised in Western Australia are:

- The Mitchell Freeway Stage 1, a feature of which was the extensive consolidation of the Narrows Interchange area by sand draining, a world class civil engineering achievement.
- The Western Australian Standard Gauge Railway Project which saw the building of standard gauge railway track and facilities from Kalgoorlie to Kwinana and the modernisation of the State's railway facilities.
- Perth's first public water supply scheme, bringing hills water from Victoria Dam to Mt Eliza, completed in the 1890s.
- The NASA Space Tracking Station at Carnarvon, a joint American Australian facility which played a key role in the 1969 moon landing.

- The Fremantle Fortress – Rottnest Island World War 2 Coastal Defence Facilities.

The successful nomination of the Sons of Gwalia Headframe and Winder Engine was prepared for Engineering Heritage WA by Ian Maitland.

Ian was assisted by Mr Jim Epis, CEO, Shire of Leonora, Ms Elaine Labuschagne, Manager Economics and Heritage Services, Shire of Leonora, Dr Richard Hartley, Engineer and Historian.

Additionally, this ceremony would not have been possible without the support and financial contribution of the Shire of Leonora and on behalf of Engineers Australia I thank them for their support.

The Sons of Gwalia headframe and winder engine are a worthy addition to the list of Australian engineering projects, which have been recognised by Engineering Heritage Australia.



## **Gold Mining in Western Australia, History of the Sons of Gwalia Mine and the Role of the Headframe and Winder Engine**

Until the 1870s the economy of Western Australia was based on wheat, meat and wool. A major change in the state's fortunes occurred in the 1880s when gold was discovered and prospectors by the tens of thousands swarmed across the land in a desperate attempt to discover new goldfields.

By 1900, more than a third of the state's population was located in the Goldfields. The political influence of this population was demonstrated when the Goldfields threatened to secede, should Western Australia not join the Australian Federation.

The Sons of Gwalia reef was discovered in April or May 1896 by prospectors Carlson, White and Glendinning.

The new find was only one of a number of reefs opened up on the Mount Leonora district in that year, but was to prove by far the most significant.

Small scale extraction commenced and within a year the mine was making a profit. A London based firm of engineers then took over the mine and sent a young American mining engineer, Herbert Hoover, to prepare a thorough evaluation.

Hoover arrived at the mine in August 1897 and had no doubts about the long-term value of the property, and recommended systematic extraction, and construction of a much larger treatment plan.

He was then appointed General Manager.

In a harsh climate, seventy miles from the railhead at Menzies, and faced with high material and labour costs, Hoover saw that his critical task was to reduce production costs by any means at his disposal. "No other lode in the world", he claimed, "presents such an array of severe conditions which must be struggled against to do cheap mining." Within days of his arrival, he calculated that he could cut production costs by a third.

He increased the working hours, stopped double time on Sundays, sacked the union organisers, and reduced wages.

Hoover planned a radical change in the underground workings. A new incline shaft was to be sunk at 45° in the gold-bearing formation itself. Haulage was to be done by a 50 horse power Risdon winding engine over a headframe of Oregon timbers 48 feet high which incorporated an automatic ore cart tipping device, primary crusher and ore bin. Work on the new incline shaft commenced by September 1898.

Hoover left the Sons of Gwalia in November 1898, after little more than a year, but achieving a great deal.

By the early twentieth century a large proportion of the underground miners were Italians or Slavs.

In 1917 a Government Official visiting the State Hotel observed: "The trade is practically confined to Italians. I hardly saw an Englishman on the premises, and during my stay I saw only one drunkard - and he an Englishman."

It is evident that both ethnic and social division existed to maintain two distinct communities Leonora and Gwalia, over many decades.

The Sons of Gwalia was in steady production from 1900 until 1910, but there were emerging technical problems which would worsen with the passage of time.

There were problems with the power supply and productivity reduced as the ore-body grew more distant from the shaft.

The winder engine broke down in May 1911 when it was hauling ten miners in a skip, which then ran away to the shaft bottom. Three of those aboard were killed.

A Fraser & Chalmers engine, rated at 1,000 hp and capable of hauling at 1,500 feet per minute was installed in 1913. The headframe was raised in height to 62 feet underground, and horse traction was introduced to cut haulage costs along the drives.

With its incline shaft just short of 4,000 feet in length, the Sons of Gwalia was in 1919 the deepest mine in Western Australia, and yet probably the most economical in operation.

Two disasters beset the Sons of Gwalia in January 1921. The Burnside industrial award came into effect, raising the labour component of production costs by 30%. A fire broke out and destroyed much of the surface plant. Dedicated effort by the company staff saved the headframe and winder.

The disaster allowed the company to dismiss almost its entire workforce, dramatically cutting expenditure for nearly three years.

The effect on the Gwalia community was devastating. Practically the entire workforce - about 400 men - were dismissed. The Mines Department came to the rescue, and provided sustenance payments of three pounds a week to the workers.

Recovery was slow, production and the price of gold were down.

The company had no incentive to expand in the circumstances, and instead, began to talk of closing down.

In 1928 the State Government advanced the company 78,000 pounds to be spent on equipment and to finance underground development.

Meanwhile that year, Herbert Hoover was elected president of the United States.

The injection of money led to vigorous development. Diamond drilling was resumed, and the incline shaft was sunk below 4,000 feet.

Then in 1931 came the miracle: the gold price rise.

It is an economic paradox that the gold industry prospers in times of depression.

The Sons of Gwalia's decade of misery was over.

The 1930s years of prosperity were put to good use, with major re-investment in bigger and more efficient surface plant.

A swimming pool constructed on Tower Street overlooking the mine, to provide both a welcome community facility and good head of water for firefighting.

These investments were timely, for they were to carry the company through the lean years that lay ahead. The war brought labour shortage, exacerbated by the internment in 1940 of the Italian nationals amongst the workforce. Production fell sharply.

The end of the war had not eased the labour shortage and labour was becoming more expensive. Production and the gold price were again down. In 1948 the company made a loss for the first time since 1929. The dividend of 1950 was the last the shareholders were to receive.

Throughout the 1950s State government loans kept the mining operating, but there was little prospect of repayment, as the mine barely paid its production costs each year.

In 1968 an announcement was made that the mine would close on New Year's Eve. An accident intervened on 27 December and the mine was finished.

Sons of Gwalia went into receivership.

Over 65 years the mine produced 2.5 million ounces of gold, provided employment to thousands of workers and was a significant contributor to the State's economy.

The headframe was going to be demolished in the 1970s, assessed as being unsafe. Action by the museum's curators ensured that it was fenced instead. It was threatened again the 1980's when the open pit expanded. Fortunately it was moved and rebuilt here at the museum, in correct proximity to the steam winder, which was also relocated.

Timber headframes are now very rare in Australia, only 5 known to still exist. Three of these are in WA, Sons of Gwalia being the oldest. It is the only large incline headframe in the country, and one of very few large timber headframes from the 19th century still in existence world-wide.

The 1912 Fraser and Chalmers winder engine is the largest of its type in Australia and only one of three surviving. It is a fine example of a larger, steam-powered winding machine and an example of technological achievement of the period.

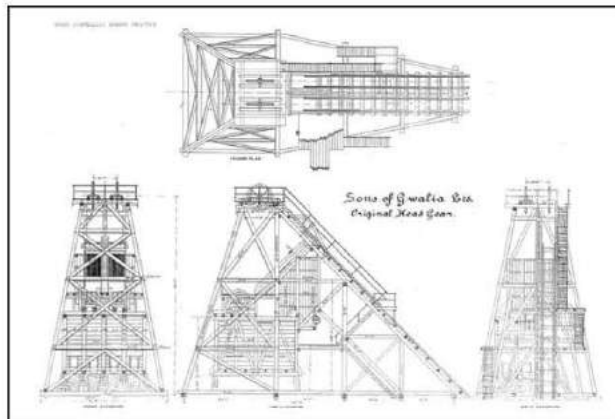
It now gives me great pleasure to invite Wendy Duncan, MLA to unveil the Engineering Heritage Australia's Interpretation Panel for Sons of Gwalia Headframe and Winder Engine.

## **APPENDIX 4 – CEREMONY BROCHURE**

## STATEMENT OF SIGNIFICANCE

The Sons of Gwalia headframe and winder engine have cultural heritage significance for the following reasons:

- The headframe and winder engine form part of the Gwalia Museum Group which:
  - is valued by the local and wider communities for its associations with the early goldmining history of the towns of Leonora and Gwalia, and for its ongoing value as a tourist attraction, as evidenced by the efforts of the local community in restoration, preservation and presentation of the group;
  - presents a unique cultural environment in close proximity to a modern mining operation and contributes to a greater understanding of the mining operations of 1898 to 1963;
  - has a landmark quality demonstrated by the visual impact of the Headframe;
  - presents the past lifestyle to former residents and their descendants who return to see where and how family members lived and worked.
- The headframe is the only large timber underlie, or incline, surviving in Australia. It is one of only five large remaining headframes now in the country, and the largest of three in Western Australia.
- The 1912 Fraser & Chalmers Winder Engine is the largest of its type in Australia and one of only three surviving. It is a fine example of a large, steam-powered winding machine and an example of technological achievement of the period.
- The headframe had a short, but significant, association with Herbert Hoover, later a President of the United States of America.

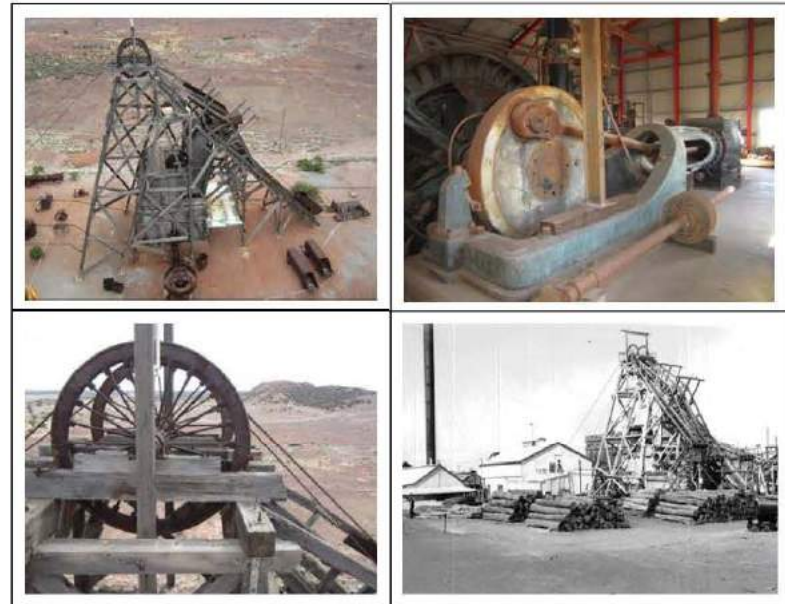


## SONS OF GWALIA - HEADFRAME AND WINDER ENGINE -

Engineering Heritage National Landmark

Commemoration Ceremony  
Gwalia Museum  
Gwalia WA

Sunday, 31 May 2015



## PROGRAM

---

**Acknowledgement of Traditional Ownership of Land**  
Kado Muir

**Formal welcome, recognition of distinguished guests and apologies**  
Ian Maitland, Chairman of Engineering Heritage Western Australia

**Introduction**  
Ian Maitland of Francis Norman,  
President of Engineers Australia Western Australian Division

**Engineers Australia Engineering Heritage Recognition Program**  
Francis Norman

**Gold Mining in Western Australia, history of the Sons of Gwalia Mine and the role of the Headframe and Winder Engine.**  
Ian Maitland

**Unveiling of Engineering Heritage Australia Interpretation Panel**  
Wendy Duncan MLA  
Member for Kalgoorlie

**Acceptance of Panel**  
Peter Craig  
Shire of Leonora President

**Closing Remarks**  
Ian Maitland

---

Following light refreshments a tour of the Gwalia ghost town and museum will be conducted.

## THE TIMBER HEADFRAME

---

The original headframe was about 19 metres high with a 45-degree runway on the same incline as the mineshaft. It was slightly increased in height at a later date.

The headframe was constructed using oregon timber imported from the USA. At the time oregon was cost effective and was widely used for building and mine construction in Western Australia. Being relatively light weight (about half the density of locally available jarrah and karri hardwoods) it also had the advantage of being easier to transport and erect.

The headframe is the only large timber incline headframe surviving in Australia, and one of very few timber headframes of any size from the nineteenth century. There are only three surviving timber headframes in Western Australia. Sons of Gwalia headframe is the oldest.

The headframe has a landmark quality demonstrated by its visual impact around the towns of Gwalia and Leonora.

Basic Data: Headframe height: approx. 20 metres  
Lifting capacity: 13 tons  
Maximum haul length: 5000 feet  
Headframe timber: Oregon

## THE WINDER ENGINE

---

The original 50 horsepower Risdon engine was replaced in 1913 by a two cylinder Fraser and Chalmers engine rated at 1000 horsepower and capable of hauling 1500 feet per minute. The manufacturer, from Kent, England, built a wide range of mining machinery from around the turn of a century including many large winders. The company is now incorporated in the General Electric Co.

The engine is a direct acting, double-drum engine. The cylinders are 27in. diameter with 60in. stroke and diameter of drums is 10ft. It is fitted with Corliss valve gear and governor. The post brakes, friction clutches and reversing gear are all operated by steam, and the disc brakes are operated by foot levers. Both drums are loose on shaft, and are operated by friction clutches.

The engine is the largest of its type in Australia and one of only three surviving. It is a fine example of a large, steam-powered winding machine and an example of technological achievement of the period, one hundred years ago.

Basic Data: Winder engine power: 1000hp  
Steam pressure: 120psi  
Haulage rate: 1500 ft per minute  
Drum diameter: 10 feet

## **APPENDIX 5 – INTERPRETATION PANEL DESIGN**





# SONS OF GWALIA

## - HEADFRAME AND WINDER ENGINE -



### GOLD MINING IN WESTERN AUSTRALIA

Until the 1870s the economy of Western Australia was based on wheat, meat and wool. A major change in the state's fortunes occurred in the 1880s when gold was discovered and prospectors by the tens of thousands swarmed across the land in a desperate attempt to discover new goldfields.

Paddy Hannan's discovery at Kalgoorlie and the earlier discoveries at nearby Coolgardie sparked the gold fever. By 1900, more than a third of the state's population was located in the Goldfields.

Gold production reached its first peak in 1903, with over 50 tonnes of gold produced annually. Over the decades production rose and fell. In the mid-1980s a new gold boom hit the state. By 1990, production hit 150 tonnes of gold per year, three times the previous peak of 1903. It reached an all-time record in 2001 with close to 250 tonnes of gold produced that year, being 10% of the world's output.

### SONS OF GWALIA MINE

The Sons of Gwalia reef was discovered in 1896. Production and settlement by Europeans immediately commenced and the twin towns of Leonora and Gwalia became established and were connected by railway to Kalgoorlie and Coolgardie, 250 km to the South.

The Sons of Gwalia was in steady production from 1900 until 1910 yielding about 60,000 ounces of gold each year.

By 1919, with its incline shaft just short of 4,000 feet in length, the Sons of Gwalia was the deepest mine in Western Australia, and yet probably the most economical in operation.

In January 1921, disaster struck when a fire broke out in the gas producer plant. It spread quickly and destroyed the greater part of the surface plant. Dedicated effort by the company staff saved the headframe and winder engine.

Over the next four decades, mine production rose and fell due to various technical problems, the Great Depression, World War 2, labour shortages, the fluctuating price of gold and gradually declining ore grade.

The underground mine remained in production continuously up to 1963, when it became uneconomic and was closed. In the 1980s, the headframe and winder engine were relocated to the Gwalia Museum, while the underground mine has transformed to an open-cut operation.



For more details of this and other engineering heritage awards, go to [www.engineerheritage.com.au](http://www.engineerheritage.com.au)



Gwalia, 1902



Early housing in Gwalia

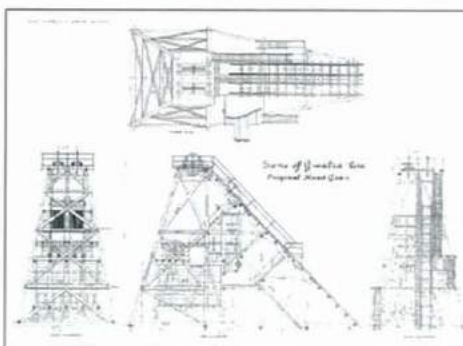


The winder engine remained in use until the mine closed in 1963

### BASIC DATA

Headframe height: approx. 20m  
Lifting capacity: 13t  
Maximum haul length: 5000ft  
Headframe timber: Oregon

Winder engine power: 1000hp  
Steam pressure: 120psi  
Haulage rate: 1500ft per minute  
Drum diameter: 10ft



### EMINENT PERSONS

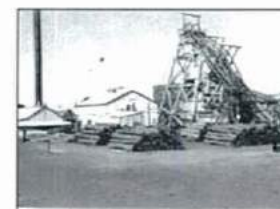


Herbert Hoover was appointed Superintendent of the Sons of Gwalia mine in March 1898 at the age of 24. He instigated efficiencies at the mine, including replacing the vertical shaft with the incline. He developed the mine into a profitable and efficient operation, employing many migrant miners, especially Italian and Austrian. During Hoover's time in Gwalia, the mine employed 500 men.

Herbert Hoover left Gwalia late in November 1898. He became the President of the United States of America in 1929.

An Engineering Heritage National Marker was awarded to Shire of Leonora on 31 May 2015.

Engineers Australia acknowledges the assistance given by Shire of Leonora in producing this interpretation panel. Historical photographs courtesy of Gwalia Museum Group.



Each ore cart dumped its 4t load into a storage bin inside the headframe. The ore was then gravity-fed to the adjacent primary crusher



Mine workers coming off-shift



The steam engine wound the hauling rope onto two 10ft (3m) diameter drums, raising an ore cart every three minutes

### THE ROLE OF THE HEADFRAME AND WINDER ENGINE

The timber headframe and winder engine worked together to transport people, timber, horses and ore in and out of the mine workings below. The distinctive 45° incline aligned the mineshaft with the direction of the gold reef, significantly improving the efficiency of the workings.

The headframe guides the hauling ropes between the winder and the ore carts in the shaft and enabled the carts to be elevated so the ore could be discharged at a convenient height above ground.

### THE TIMBER HEADFRAME

The original headframe was about 19 metres high with a 45-degree runway on the same incline as the mineshaft. It was slightly increased in height at a later date.

The headframe was constructed using oregon timber imported from the USA. At the time oregon was cost effective and was widely used for building and mine construction in Western Australia. Being relatively light weight (about half the density of locally available jarrah and kam hardwoods) it had the advantage of being easier to transport and erect.

The headframe is the only large timber incline headframe surviving in Australia, and one of very few timber headframes of any size from the nineteenth century. There are only three surviving timber headframes in Western Australia. Sons of Gwalia headframe is the oldest.

The headframe has a landmark quality, demonstrated by its visual impact around the towns of Gwalia and Leonora.

### THE WINDER ENGINE

The original 50 horsepower Risdon engine was replaced in 1913 by a two cylinder steam-powered Fraser and Chalmers engine rated at 1000 horsepower and capable of hauling 1500 feet per minute. The manufacturer, from Kent, England, built a wide range of mining machinery from around the turn of a century including many large winders. The company is now incorporated in the General Electric Co.

The winder engine is a direct acting, double-drum steam engine. The cylinders are 27in. diameter with 60in. stroke and diameter of each winding drum is 10ft. The engine is fitted with Corliss valve gear and governor. The post brakes, friction clutches and reversing gear are all operated by steam, and the disc brakes are operated by foot levers. Both drums are loose on shaft, and are operated by friction clutches.

The engine is the largest of its type in Australia and one of only three surviving. It is a fine example of a large, steam-powered winding machine and an example of technological achievement of the period, one hundred years ago.

## **APPENDIX 6 – DETAILS OF THE HEADFRAME AND WINDER ENGINE**

### **The Role of the Headframe and Winder Engine**

The timber headframe and winder engine worked together to transport people, timber, horses and ore in and out of the mine workings below. The distinctive 45° incline aligned the mineshaft with the direction of the gold reef, significantly improving the efficiency of the workings.

The headframe guides the hauling ropes between the winder and the ore carts in the shaft and enabled the carts to be elevated so the ore could be discharged at a convenient height above ground.

### **The Timber Headframe**

The original headframe was about 19 metres high with a 45-degree runway on the same incline as the mineshaft. It was slightly increased in height at a later date.

The headframe was constructed using oregon timber imported from the USA. At the time oregon was cost effective and was widely used for building and mine construction in Western Australia. Being relatively light weight (about half the density of locally available jarrah and karri hardwoods) it had the advantage of being easier to transport and erect.

The headframe is the only large timber incline headframe surviving in Australia, and one of very few timber headframes of any size from the nineteenth century. There are only three surviving timber headframes in Western Australia. Sons of Gwalia headframe is the oldest.

The headframe has a landmark quality, demonstrated by its visual impact around the towns of Gwalia and Leonora.

### **The Winder Engine**

The original 50 horsepower Risdon engine was replaced in 1913 by a two cylinder steam-powered Fraser and Chalmers engine rated at 1000 horsepower and capable of hauling 1500 feet per minute. The manufacturer, from Kent, England, built a wide range of mining machinery from around the turn of a century including many large winders. The company is now incorporated in the General Electric Co.

The winder engine is a direct acting, double-drum steam engine. The cylinders are 27in. diameter with 60in. stroke and diameter of each winding drum is 10ft. The engine is fitted with Corliss valve gear and governor. The post brakes, friction clutches and reversing gear are all operated by steam, and the disc brakes are operated by foot levers. Both drums are loose on shaft, and are operated by friction clutches.

The engine is the largest of its type in Australia and one of only three surviving. It is a fine example of a large, steam-powered winding machine and an example of technological achievement of the period, one hundred years ago.

## **APPENDIX 7 – MEDIA COVERAGE**

The ceremony was extensively covered in the media including:

- A telephone interview on ABC Regional radio with Ian Maitland, Chair EHWA, several days before the event.
- Media release by Shire of Leonora early May 2015 (attached).
- Shire of Leonora Newsletter, Number 11, June 2015 (attached).
- Articles in Tower Street Times, July 2015 (attached).
- Article in Kalgoorlie Miner, June 2015 (attached).
- Article by ABC, 25 June 2015 (attached).
- Article by Engineers Australia, 2 June 2015 (attached).



## Media Release

### Recognition for iconic landmark

The engineering significance of the Sons of Gwalia Headframe and Winder engine was recently recognised when it was awarded an ***Engineering Heritage National Marker*** under the Engineers Australia's Heritage Recognition Programme. The research and nomination was undertaken by Engineering Heritage Western Australia.

"Our engineering heritage often does not receive the same attention as some other forms of heritage, particularly in remote country areas. It is wonderful to be able to nominate the Sons of Gwalia Headframe & Winder Engine, and pay tribute to our forefather engineers." said Ian Maitland, Chair, Engineering Heritage Western Australia.

The headframe was designed in 1898 during the time of Herbert Hoover as Sons of Gwalia mine manager. Oregon timber was used to construct the headframe as it was cost effective and widely used for building and mine construction in Western Australia. Being relatively light-weight it had the advantage of being easier to transport and erect. It is about 19 metres high with a 45-degree runway on the same incline as the mineshaft.

"The Shire of Leonora recognises the significance of the Sons of Gwalia headframe as the only large timber incline headframe surviving in Australia, and one of a few timber headframes of any size from the nineteenth century. The Shire has made substantial financial contribution and will supplement a Lotterywest Conserving Cultural Heritage grant for conservation work to be staged over a three year period to save this iconic landmark." said Cr Peter Craig, Shire President.

The timber headframe and winder engine worked together to transport people, timber, horses and ore in and out of the mine workings below. The distinctive 45° incline aligned the mineshaft with the direction of the gold reef, significantly improving the efficiency of the workings. The headframe guides the hauling ropes between the winder and the ore carts in the shaft and enabled the carts to be elevated so the ore could be discharged at a convenient height above ground.

The original 50 horsepower Risdon engine was replaced in 1913 by a two cylinder steam-powered Fraser and Chalmers engine rated at 1000 horsepower and capable of hauling 1500 feet per minute. The manufacturer, from Kent, England, built a wide range of mining machinery from around the turn of a century including many large winders.

The winder engine is a direct acting, double-drum steam engine. The cylinders are 27in. diameter with 60in. stroke and diameter of each winding drum is 10ft. The engine is the largest of its type in Australia and is a good example of technological achievement of one hundred years ago.

The headframe and winder engine was relocated to its present position at Gwalia Museum in late 1980s when the underground mine transformed to an open-cut operation.

The Shire of Leonora will host a function on the Sunday 31 May during the Golden Gift Weekend in celebration and to unveil the marker.



## Recognition for Iconic Gwalia Landmark

Elaine Labuschagne

The engineering significance of the Sons of Gwalia Headframe and Winder engine was recently recognised when it was awarded an Engineering Heritage National Marker under the Engineers Australia's Heritage Recognition Programme.



**Wendy Duncan unveiling the Engineering National Heritage Marker.**  
*Photo taken by Kate Ferguson*

The research and nomination was undertaken by Engineering Heritage Western Australia. The Shire of Leonora hosted a function in celebration and to unveil the Marker on Sunday 31 May 2015 during the annual Golden Gift weekend.

The Marker was unveiled by Wendy Duncan MLA, Kalgoorlie, and accepted on behalf of the Shire of Leonora by Cr Peter Craig, Shire President.

substantial financial contribution and will supplement a Lotterywest Conserving Cultural Heritage grant for conservation work to save this iconic landmark," said Cr Craig.

Ian Maitland, Chairman, Engineering Heritage Western Australia, welcomed guests and gave the historical background to mining at Gwalia. He said that "Our engineering heritage, particularly in remote country areas, often does not receive the same attention as some other forms of heritage. The Engineering Heritage National Marker is awarded to the Sons of Gwalia headframe and winder engine, and pays tribute to our forefather engineers."



**Jim Epis, CEO and Peter Craig, Leonora Shire President in front of the Sons of Gwalia Headframe**

Francis Norman, President of Engineers Western Australia Division, explained the Engineers Australia Engineering Heritage Recognition Programme to the approximately 40 guests. He said the programme focused the attention of both engineers and the general community on the role played by engineers and engineering in the development of the nation and encouraged the physical conservation of Australia's important engineering heritage works.

The Oregon timber headframe was designed in 1898 during the period Herbert Hoover served as the Sons of Gwalia mine manager. The headframe is about 19 metres high with a 45-degree runway on the same incline as the mineshaft. It is the only large timber incline headframe surviving in Australia, and one of only a few remaining timber headframes of any size from the 19th century.

horses and ore in and out of the mine workings below. The headframe guided the hauling ropes between the winder and the ore carts in the shaft and enabled the carts to be elevated so the ore could be discharged at a convenient height above ground.

The two cylinder 1000 horsepower steam-powered Fraser and Chalmers engine was capable of hauling 1500 feet per minute. It is the largest of its type in Australia and is a good example of the technological achievements of more than a century ago.

The timber headframe and winder engine worked together to transport people, timber,



**Ian and Ursula Maitland, Francis and Rebecca Norman, Elaine Labuschagne at the ceremony.**  
*Photo taken by Kate Ferguson*



# TOWER STREET Times

\$3 July 2015

## Recognition for Iconic Gwalia Landmark

Elaine Labuschagne



The engineering significance of the Sons of Gwalia Headframe and Winder Engine was recently recognised when it was awarded an **Engineering Heritage National Marker** under the Engineers Australia's Heritage Recognition Programme. The research and nomination was undertaken by Engineering Heritage Western Australia.

The Shire of Leonora hosted a function on Sunday 31 May during the Golden Gift Weekend in celebration. The Marker was unveiled by Wendy Duncan, MLA, and Kalgoorlie and received on behalf of the Shire by Cr Peter Craig, Shire President on 31 May 2015.

"The Shire of Leonora would like to thank Engineering Heritage Western Australia, especially Ian Maitland, Chairman of Engineering Heritage Western Australia, who was the driving force behind the research and nomination. The Shire recognises the significance of the Sons of Gwalia headframe as the only large timber incline headframe surviving in Australia, and will make financial contributions to supplement a Lotterywest Conserving Cultural Heritage grant for conservation work to save this iconic landmark." said Cr Peter Craig, Shire President.

The headframe was designed in 1898 during the time of Herbert Hoover as Sons of Gwalia mine manager. Oregon timber was used to construct the headframe as it was cost effective and widely used for building and mine construction in Western Australia. Being relatively light-weight it had the advantage of being easier to transport and erect. It is about 19 metres high with a 45-degree runway on the same incline as the mineshaft.

(Continued page 3)

Leonora  
Community Resource Centre  
Your local connection

Supported by

Supporting Tourism in the Goldfields  
**Eagle Petroleum**

**coles** Leonora

Leonora  
Supermarket

AUSTRALIA  
**POST** Leonora

**LEONORA  
PHARMACY**



Wendy Duncan, MLA, Kalgoorlie unveiling the Engineering National Heritage Marker on 31st May 2015.

Photo by Kate Ferguson

The timber headframe and winder engine worked together to transport people, timber, horses and ore in and out of the mine workings below. The distinctive 45° incline aligned the mineshaft with the direction of the gold reef, significantly improving the efficiency of the workings. The headframe guides the hauling ropes between the winder and the ore carts in the shaft and enabled the carts to be elevated so the ore could be discharged at a convenient height above ground.

The original 50 horsepower Risdon engine was replaced in 1913 by a two cylinder steam-powered Fraser and Chalmers engine rated at 1000 horsepower and capable of hauling 1500 feet per minute. The manufacturer, from Kent, England, built a wide range of mining machinery from around the turn of a century including many large winders. The winder engine is a direct acting, double-drum steam engine. The cylinders are 27in. diameter with 60in. stroke and diameter of each winding drum is 10ft. The engine is the largest of its type in Australia and is a good example of technological achievement of one hundred years ago.

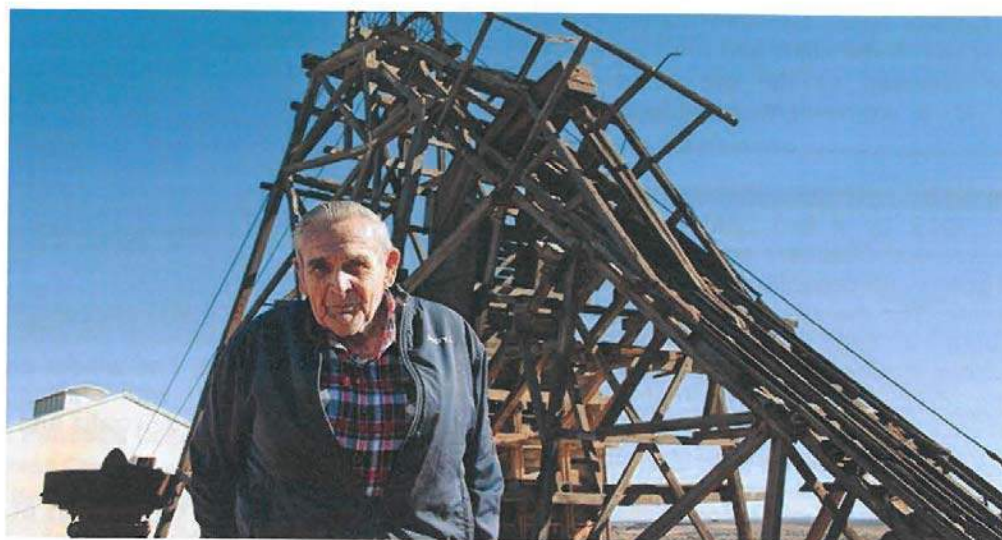
"Our engineering heritage often does not receive the same attention as some other forms of heritage, particularly in remote country areas. It was wonderful to be able to nominate the Sons of Gwalia Headframe and Winder Engine, and pay tribute to our forefather engineers." said Ian Maitland, Chairman of Engineering Heritage Western Australia.

Submitted by Elaine Labuschagne. Photo from Shire of Leonora Collection





## SONS OF GWALIA HEADFRAME AND WINDER ENGINE ENGINEERING HERITAGE RECOGNITION



Bill Johnson was there at the end when the old Gwalia mine closed in 1963 and the timber headframe was still in use. (ABC Goldfields: Nathan Morris)

Sons of Gwalia Headframe and Winder Engine Commemoration Ceremony. The engineering significance of the Sons of Gwalia Headframe and Winder Engine was recently recognised when it was awarded a prestigious Engineering Heritage National Marker under the Australia's Heritage Recognition Programme. A function was hosted at the Gwalia Museum in celebration and to unveil the marker.



***The Headframe***



***The Winder Engine***

Information sourced from Golden Gift Programme



## Gwalia mine headframe engineering feat marked

■ Jarrod Lucas

The historic Sons of Gwalia headframe has stood the test of time and now it stands tall with a place among nationally significant engineering works.

The timber headframe and winder engine have been awarded an Engineering Heritage National Marker, more than a century after it was designed in 1898 when future US President Herbert Hoover was Sons of Gwalia mine manager.

Engineering Heritage WA nominated the headframe and winder engine, which were relocated to the Gwalia Museum in the late 1980s when the underground mine was transformed to an open-cut operation.

"Our engineering heritage often does not receive the same attention as some other forms of heritage, particularly in remote country areas," Engineering Heritage WA chairman Ian Maitland said.

"It is wonderful to be able to nominate the Sons of Gwalia headframe and winder engine and pay tribute to our forefather engineers."

Oregon timber was used to construct the headframe because it was cost effective and widely used for building and mine construction in WA. It was relatively light weight and had the advantage of being easier to transport and erect.

The headframe is about 19m high with a 45-degree runway on the same incline as the mineshaft.



Jim Epis and Peter Craig are hoping for a Lotterywest grant to help preserve the Sons of Gwalia headframe.

Shire of Leonora president Peter Craig said the council would supplement a Lotterywest Conserving Cultural Heritage grant for work to be staged over a three-year period to preserve the headframe.

"The Shire of Leonora recognises the significance of the Sons of Gwalia headframe as the only large timber incline headframe surviving in Australia, and one of a few timber headframes of any size from the 19th century," Cr Craig said. The headframe and winder

engine worked together to transport people, timber, horses and ore in and out of the mine workings below.

The 45-degree incline aligned the mineshaft with the direction of the gold reef, significantly improving the efficiency of the workings.

The headframe guides the hauling ropes between the winder and the ore carts in the shaft and enabled the carts to be elevated so the ore could be discharged at a convenient height above ground.

The original 50hp Risdon engine was replaced in 1913 by a two-cylinder steam-powered Fraser and Chalmers engine rated at 1000hp.

Manufactured in Kent, England, the winder engine is a direct acting, double-drum steam engine and the largest of its kind in Australia.

The Shire of Leonora will unveil the marker — part of Engineers Australia's Heritage Recognition Program — at a function on May 31 during the Golden Gift Weekend.

## Boadicea sinks 550m drill hole at Symonds Hill

■ Jarrod Lucas

Boadicea Resources this week sunk a 550m diamond drill hole at its Symonds Hill prospect on the Fraser Range in the hope of striking it lucky with a repeat of Sirius Resources' 2012 Nova discovery.

The Victorian exploration company said the hole was designed to intersect an electromagnetic anomaly anticipated at a depth of 475m.

The anomaly is close to a cross fault on the edge of a gravity target considered to represent a large mafic intrusive body.

Boadicea's drilling campaign is just 6km north-east of the Nova-Bollinger nickel sulphide deposit, where Sirius began mining in the March quarter and is close to finishing a box-cut for a new underground mine.

"Deposits such as Nova-Bollinger rarely occur alone, and although they may be difficult to find remain an extremely attractive exploration target," the company said in a statement.

"The Boadicea tenement area appears to contain similar rocks and structures to Nova and persistent systematic work has a good chance of leading to success."

The region remains hot property for explorers with Windward Resources also drilling this week, focusing on the Turcaud prospect at its Fraser Range North project.

Meanwhile, Ram Resources says it is planning 1500m of reverse circulation drilling at its Fraser Range South project in June after securing final approvals from the Department of Mines and Petro-

## Beacon hurls odds rears rewards at Halleys East project



25 June, 2015 3:06PM AWST

## Gwalia mining engineering recognised as Goldfields heritage

By Nathan Morris

**Near Leonora, the old Sons of Gwalia headframe and steam winder engine have been recognised under a national engineering heritage program, which is supporting preservation work at the historic Northern Goldfields mine.**

Switch to big picture mode

The Sons of Gwalia goldmine was once one of the biggest goldmines in Australia, operating as an underground mine from 1897 until the final whistle was blown in 1963.

Drawing notable attention to Gwalia, was the involvement of a young American named Herbert Hoover, who was superintendent at the mine in 1898. He later went on to become the president of the United States of America in 1929.

It was Hoover who oversaw the construction of the headframe and the additional implementation of the huge steam winder engine.

Francis Norman, the Western Australian division president for the **Engineers Australia**, emphasised the significance of the engineering at the time.

"Building these sorts of facilities and maintaining them, essentially lead to the ability to open up the economic viability of a lot of these parts of the country.

"Without them, they would not have been able to mine as deep, they wouldn't have been able to extract as much of the gold, and what mining they did, would not have been as safe," said Francis.

When a new gold boom hit Western Australia in the 1980s, the underground mine transitioned into an open cut. The old timber headframe and winder engine were relocated to the Gwalia museum, reminding visitors of the way things used to be done.

Francis said that the old timber headframe and winder engine now join a list of around about 150 similar heritage sites around the country, lending support to the people who work to preserve places like Gwalia.

He hopes future visitors to the museum will have an experience that will strengthen their understanding of what has come before.

"I hope they walk away with a really strong, tactile relationship to the history of the mining industry.

He said that instead of photos, or smaller pieces of rescued relics, at Gwalia you get to experience the real deal.

"It's a huge piece of equipment that for 50, 60 years was an integral part of a major marker on the landscape.

"A two dimensional photograph, or watching a video is nowhere near as powerful

<http://www.abc.net.au/local/photos/2015/06/25/4261847.htm>

as a physical relic such as this," he said.

### **A voice from the past**

Bill Johnson was a fitter at the old Sons of Gwalia mine, and he recalls an experience working on the timber headframe.

"I was called from the engine room where I was working, to give them a hand with the bearings on the wheels on top.

"When I first went up there it was very scary, I can tell you that. Looking around, the ground was a long way away from me," said Bill.

Bill was amongst the last few miners working at Gwalia when the old underground mine was closed in 1963.

### **Conservation and restoration to ensure that history is not lost**

Ian Maitland is the chair of Engineering Heritage Western Australia; he said he hopes the heritage recognition of the headframe and winder will contribute to the conservation of places like Gwalia.

And the Leonora shire has already begun restoration and conservation work according to manager of heritage Elain Labuschagne.

"It's already invested a lot of financial and human resources in it. It's spent quite a lot money on 3D scans to show the weaknesses of the timber structure," she said.

From there the structure will be dismantled, a metal frame will be made and fitted inside the wooden headframe, and then the whole thing will be put back together to ensure it continues to stand for many years to come.



Media release

Opinion

Explainers

Member profiles

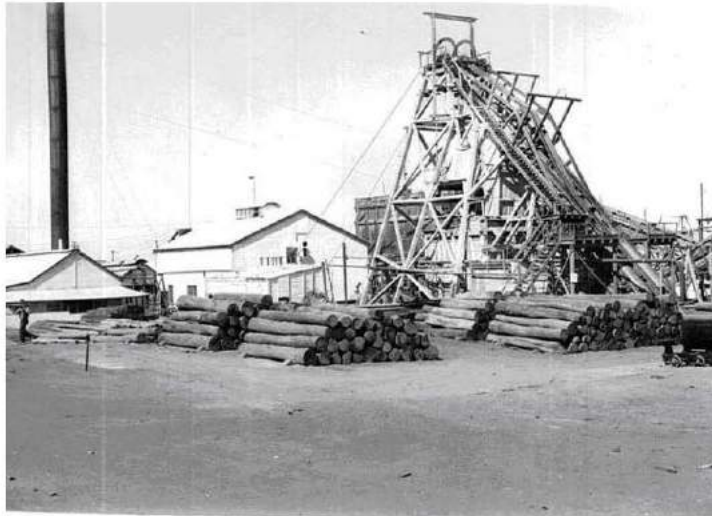
Statistics &amp; data

About

# Heritage marked at Sons of Gwalia

Wednesday, 27 May 2015

Media Release, WA, Heritage



A Western Australian gold mining treasure, with a link to the 31st President of the USA will this weekend be awarded an Engineering National Heritage Marker.

The Sons of Gwalia mine located near the twin towns of Gwalia and Leonora, in Central Western Australia. The gold reef was discovered in April or May 1896 by prospectors Carlson, White and Glendinning, who were backed by the Tobias Brothers. The new find was only one of a number of reefs opened up on the Mount Leonora district in the WA goldfields that year, but was to prove one of the most productive Western Australian gold mines outside Kalgoorlie.

"The 1912 Fraser & Chalmers Winder Engine is a direct acting, double-drum steam engine and is the largest of its type in Australia and one of only three surviving. It is a fine example of a large, steam-powered winding machine and an example of technological achievement of the period," said Ian Maitland, Chair of Engineering Heritage Western Australia.

"The original headframe was about 19 metres high with a 45-degree runway on the same incline as the mineshaft. It was slightly increased in height at a later date.

"Timber headframes like the one at Gwalia are now very rare in Australia with a number being lost in the last 30 years due to degradation and corrosion in connecting bolts and plates. At last count there are only five headframes left in Australia, three of which are in WA with the Sons of Gwalia being the oldest.

"Interestingly, the headframe had a short, but significant, association with mining engineer Herbert Hoover, who later became President of the United States of America. Hoover was manager of the mine in 1898 and replaced the vertical shaft with an incline. This among other efficiency measures made the mine profitable for many years to come.

"We are pleased the headframe and engine will be awarded an Engineering Heritage National Marker, to recognise the engineering innovation and the important role they played in gold mining in the region," Mr Maitland said.

## Media Contacts

Media enquiries  
Jonathan Russell  
National Manager, Public Affairs  
jrussell@engineersaustralia.org.au  
P: (02) 6270 6565  
M: 0447 688 483  
(monitored 24 hours)

Subscribe to EA News

Social

@EngAustralia

Feb 3

Meet Andrew Harris at our Leadership Breakfast on 16th February in Perth  
<https://t.co/SfpSafYsIF>

Feb 2

RT @ScienceChiefAu: "Time to back our potential" - Dr Finkel's first statement as Australia's Chief Scientist. #science #innovation  
<https://t.co/SfpSafYsIF>

Feb 1

New technique could lead to better solar cells  
<https://t.co/MmkXCFvUOs> via @EngAustralia